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Supreme Court of the United States.

OCTOBER TERM, 1975.

No.

BOLT, BERANEK AND NEWMAN, INC.,
PETITIONER,

v.

McDONNELL DOUGLAS CORPORATION,
RESPONDENT.

Petition for a Writ of Certiorari to the United States Court of Appeals for the Eighth Circuit.

To the Honorable, the Chief Justice, and the Associate Justices of the Supreme Court of the United States:

Bolt Beranek and Newman, Inc., your petitioner, prays that a writ of certiorari issue to review the decision of the United States Court of Appeals for the Eighth Circuit entered in this case on August 15, 1975.

Opinions Below.

The opinion of the United States Court of Appeals for the Eighth Circuit (App. B, *infra*, pp. 23-35) has been reported at 187 U. S. P. Q. 142. That opinion affirms an

unreported memorandum decision of the United States District Court for the Eastern District of Missouri (App. C, *infra*, pp. 37-51).

Jurisdiction.

The judgment of the Court of Appeals for the Eighth Circuit (App. B) was entered on August 15, 1975 and this Court's jurisdiction is invoked under 28 U. S. C. § 1254 (1).

Question Presented.

Has petitioner, as one of many inventors litigating in the Eighth Circuit, been deprived of its constitutional right to fundamental due process under the Fifth Amendment and under Art. I, § [illegible]. 8, by the Court of Appeals for that Eighth Circuit, which in this case has frankly admitted it could find *no prior art* against petitioner's important patent claim,[1] but nevertheless

a) made its decision in what is now conceded to be an attitude of hostility against patents, in bold contravention of this Court's recent reiteration of the presumption of validity and public policy of inventors being "favored as a class;"[2]

b) imposed a free and easy fiat of "obviousness," while deliberately and openly refusing to apply the "level of ordinary skill" proven in the case, and other

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[1] Claim 13.

[2] *Blonder Tongue Laboratories, Inc.* v. *University of Illinois Foundation*, 402 U.S. 313, 335; 91 St. Ct. 1434; 28 L. Ed. 2d 788 (1971).

tests specifically required by this Supreme Court as to that claim;[3]

c) used a standard that nothing or almost nothing is patentable, now statistically proven to be in hopeless conflict with *all* the other courts of appeals; and

d) ignored *all* the unanimous testimony, *on both sides,* as to the "surprise" of this invention, and deliberately substituted its own unsupported fiats, thus depriving petitioner of the fundamental rights in its trial, let alone judicial consideration by an impartial judiciary!

Constitutional and Statutory Provisions Involved.

CONSTITUTION OF THE UNITED STATES.

Fifth Amendment:

"No person shall . . . be deprived of life, liberty, or property, without due process of law."

Article I, § 8, cl. 8:

"The Congress shall have power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to . . . Inventors the exclusive right to their 'Discoveries.'"

STATUTES.

35 U. S. C. § 101:

"Whoever invents or discovers any new and useful . . . manufacture . . . or any new improvement thereof, may obtain a patent therefor."

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[3] *Graham* v. *John Deere Co. of Kansas City*, 383 U.S. 1, 17, 86 S. Ct. 684; 15 L. Ed. 2d 545 (1966).

35 U. S. C. § 103:

"A patent may not be obtained . . . if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains."

35 U. S. C. § 282:

"A patent shall be presumed valid. The burden of establishing invalidity of a patent shall rest on a party asserting it."

Statement of the Case.

A. Nature of the Case.

The subject matter of this case is concerned with the startling advance in silencing jet engine noise that made it possible to quiet modern jet aircraft—in this case the DC-10 aircraft of McDonnell Douglas—using sound-absorbing duct lining structures in the jet engine nacelle ducts, as provided to Douglas by the General Electric Company.[4]

This petition is concerned with a single, specific patent *claim 13* only[5] of petitioner's sound-absorbing duct silencer patent, which claim the Court of Appeals for the Eighth Circuit has agreed is *not found in the prior art;* the court specifically conceding that claim 13 "was not

[4] G.E. "Double Diamond" silencer, P. Ex. 20B, 20B′, 21A.

[5] Your petitioner has been forced, under protest, to abandon all the other broader claims since, as a practical matter, the Supreme Court has *not* granted certiorari (except for conflicting decisions) *in over 50 years* on a single patent claim found invalid by a Court of Appeals on prior art.

specifically taught or disclosed in any of the publications before the court" (App. B, p. 33, *infra*).

The case thus involves a highly important technology not "specifically taught or disclosed" in the prior art, the leading aircraft and aircraft engine manufacturers of the country, and the leading modern "quiet" aircraft widely used by the public including this Court.

For purposes of this petition it is not believed necessary to consider the claim language in detail,[6] other than to point out that *claim 13* calls for a sound absorber that does not absorb through the use of fiberglass fillings or other fibrous or bulk absorbing fillers of prior art duct linings, but through the action of a thin highly perforated sheet secured to and dimensioned with a honeycomb-like core in a critical manner.

It further calls for making some of the transverse walls of the honeycomb that constitutes its central core acoustically transparent, by introducing holes or apertures in such walls (App. A), while specifically keeping other sets of honeycomb walls solid or acoustically opaque. This unusual construction of having mixed sets of some walls with perforations, alongside other walls kept solid, was discovered by petitioner's inventor, Watters, to enable the structure to absorb many different frequencies of sound simultaneously, even though the honeycomb tubes were of fixed dimensions and thus presumably only one-frequency or one-tone sensitive.

It is this construction in cooperative function with the other parts that admittedly imbues the McDonnell Douglas GE absorber used in the DC-10 with its ability to effect the broad-band frequency silencing required in jet engine nacelle ducts.

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[6] In Appendix A hereof, a drawing and simple reference to the claim language is provided.

It is this construction and result of claim 13 that the Court of Appeals for the Eighth Circuit concedes is not "taught or disclosed" in any of the prior art.

It is this construction of claim 13, moreover, that each of the defendant's technical witnesses (and, of course, petitioner's experts) never even saw in the prior art, as later quoted.

But it is this construction that the Court of Appeals for the Eighth Circuit has nonetheless denied to petitioner on its holding of "obviousness."

And it is this action, which petitioner believes, and will now demonstrate, is fostered by an illegal and unconstitutional hostility to patents in the Court of Appeals for the Eighth Circuit—hostility that has not just created a grievous injustice to petitioner, but shakes the basic foundation of trust in our judicial system.

B. The Holding of "Obviousness" of Claim 13.

The Court of Appeals for the Eighth Circuit frankly concedes that the District Court made no explicit finding as to the level of ordinary skill in the pertinent art (footnote 3, App. B).

It will be recalled that this Court mandated such finding in *Graham* v. *Deere, supra* (p. 18):

> "We believe that *strict observance* of the requirements laid down here will result in that uniformity and definiteness which Congress called for in the 1952 Act" (emphasis added).

When it came to claim 13, however, as to which as before stated, the Court of Appeals frankly conceded there was no specific teaching or disclosure in the prior art, the Court of Appeals itself also declined to follow the requirements of *Graham* v. *Deere, supra.*

It ignored all the testimony of the defendant's and petitioner's witnesses as to the *actual* (not hypothetical) level of skill and knowledge of not only those skilled in the art, but even experts; *all* the testimony—unanimously concurring on both sides—of what those skilled in the art struggled to produce until the structures of this suit were finally evolved; *all* the testimony on both sides (quoted briefly, *infra*) as to the "surprise" and unexpected result involved in the phenomenon; and all the evidence as to the success of the same.

The defendant, and the District Court in following the defendant, had tried to prove the invalidity of claim 13 by alleged disclosure in specific prior art. This tack was overruled by the Court of Appeals for the Eighth Circuit in its frank concession that the system of claim 13 is *not* taught or disclosed in any of the prior art before the court.

It is thus evident that the plaintiff is not being accorded the statutory provisions of requiring *the defendant* to *sustain the burden of proving invalidity.*[7]

To the contrary, in the Eighth Circuit, at least, your petitioner has been stripped of the statutory presumption of validity and of the statutory requirement that the defendant must sustain its burden of proving invalidity.

Instead, the Court of Appeals, finding nothing in the prior art, became the petitioner's new legal adversary in place of the defendant, and proceeded to create its own hindsight-conceived fiats of obviousness in utter disregard for the record, as follows:

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[7] 35 U. S. C. § 282:

"A patent shall be presumed valid. The burden of establishing invalidity of a patent *shall rest on a party asserting it*" (emphasis added).

1. *The first fiat of the Court of Appeals (footnote 4; App. B).*

> "any person of ordinary skill in the art [of 'silencing of noise in ducts'] would look to the *non-fibrous* techniques" (emphasis added).

The proven facts—unanimous on both sides—as to what those skilled in the art actually *did look to* for this duct silencing problem demonstrate the complete falseness of this fiat. The fact is, that those skilled in the art (including the defendant McDonnell Douglas, General Electric and NASA) did *not* "look to the non-fibrous techniques," but persisted in the fibrous techniques, and desperately tried to make them work, but without success.

Each of defendant's technical witnesses concurred with the testimony of plaintiff's witness, Dr. Leo Beranek[8] (A. Vol. 1, pp. 83-94) that the structures evolved and used by those skilled in this art (before Watters) for lining ducts subject to engine generated or similar aerodynamic forces, noise frequencies and attendant conditions, relied upon fibrous absorbing layers or fillers, as in P.E. 27 and Baruch patents P.E. 2-4:

> McDonnell acoustics department head, McPike (A. Vol. II pp. 383-384); "fiberglass material."
>
> General Electric engineer, Smith (A. Vol. I, pp. 316, 340); "protected fiberglass."

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[8] Professor at Harvard and M.I.T.; fellow and past president of Acoustical Society of America and Institute of Noise Control Engineering; fellow of American Institute of Physics, Institute of Electrical and Electronic Engineers, American Academy of Arts and Sciences, National Academy of Engineering; copious text book writer in acoustics and noise control, over a hundred published scientific papers, and lectures all over the world (App. Vol. I, pp. 75-80).

Defendant's trial expert, Yerges (A. Vol. I, pp. 252-253); "filled with a fibrous mineral or glass wool."

At the time of the Watters invention, indeed, as Dr. Beranek aptly put it (A. Vol. I, p. 155):

> "The whole direction was in the direction of thicker sheets with bigger holes and putting the absorbing material behind and not going in this direction" (i.e. of Watters).

Indeed, when NASA, as late as the mid-1960's, instituted a research program, including McDonnell Douglas (A. Vol. II, pp. 383-385), to try to find a satisfactory answer for absorbing jet engine sounds, those skilled in the art did not "look to the non-fibrous techniques" as hypothesized by the Court of Appeals, but, to the contrary, adopted initial structures that were these very prior art type of fiber-filled structures with "stainless steel felt," "sintered woven screens," etc. (A. Vol. I, p. 154); or in the words of McDonnell Douglas' acoustic head, McPike, "a Brillo pad" (A. Vol. II, p. 383). These fiber absorber-filled panels are shown, for example, in P.E. 26 and the NASA report, P.E. 25, as are other structures experimented with over the years.

The defendant's acoustics department head, Mr. McPike, graphically described the difficulties and failures with such prior-art-based approaches that those skilled in the art *actually* struggled with, including "fiber metals . . . scattered around the City of Long Beach" (A. Vol. II, p. 384).

In addition, the General Electric Company did not institute until as late as 1967 its own "intensive development effort" trying, in the words of their engineer Smith, to develop an absorber with *no* "metal or rigid fiber glass, no bulk absorber" (A. Vol. I, p. 348).

2. *The second fiat of the Court of Appeals* (*App. B, p. 33*).

> ". . . although this technique was not specifically taught or disclosed in any of the publications before the court, the method was one which would be obvious to a person of ordinary skill in the art. . . . obvious alternative . . . to connect some of the chambers by means of slits or perforations."

In the first place, the finding that this "would *be* obvious" (by hindsight), is not the test of *Graham* v. *John Deere Co. of Kansas City*, 383 U.S. 1, 86 S. Ct. 684; 15 L. Ed. 2d 545 (1966), or of the statute, that is concerned, to the contrary, with what "*would have been obvious at the time the invention was made.*"

Apart from this, *all* the acoustic and technical expert witnesses, on both sides, agreed that the phenomenon resulting from the new structure was a decided "surprise," and in a direction away from what those skilled in the art had actually been doing or even thought possible!

Only the Court of Appeals for the Eighth Circuit found the structures of claim 13 "obvious." Not a single technical witness for either side made any such statement.

The record is abundantly clear, as before quoted, that with all the prior art before them, none of the researchers at NASA, the General Electric Company, or the defendant McDonnell Douglas found it obvious to evolve the Watters type of structure of claim 13, even as late as the mid and late 1960's!

More than this, the defendant's chief acoustics engineer, McPike, frankly admitted that his knowledge of the state of the acoustics art and that of his colleagues (*including specifically the prior art cited by defendant and referred to by the Court of Appeals*) initially *led them away* from making the Watters discovery that broad frequency band

absorption could be obtained with a thin, appropriate small-hole and small center-spacing sheet alone, without absorptive filler, rigidly supported by constant-dimensioned closely spaced honeycomb supports, as incorporated in claim 13:

> "[w]e in acoustics *knew better* . . . and that in fact we would only achieve a significant reduction *at a single frequency.*" (A. Vol. II, pp. 385-386.) (Emphasis added.)
>
> "I'll confess that those of us in acoustics were *terribly embarrassed* because as a result of our tests in our chamber of this type we found that lo and behold . . . we obtained reduction *over a band of frequencies.* And at that time, we took with us into our discussions with G.E. the general approach that we would want to use an installation in the DC-10 which was in fact a honeycomb core behind a perforated plate material." (A. Vol. II, p. 387.) (Emphasis added.)
>
> "Q. You were surprised, weren't you?
>
> "A. Yes, we were not aware . . . again, our state of the art in Douglas at the time did not tell us that we would achieve this resistance under the conditions of the engine." (A. Vol. II, p. 393.)

Mr. McPike also frankly conceded (A. Vol. II, pp. 393-394) that others of the "ten or twelve" engineers in his group having degrees "in physics and engineering and very knowledgeable in acoustics," also, "did not know about it" before these surprising results were obtained.

He further stated that before his 1967 tests, he had not seen this structure "described in any publication" (A. Vol. II, p. 399).

And similar comments were made by General Electric engineer Smith, who conceded that the concept of not using "any of this fibrous bulk material" for silencing jet engine noise "had never been done before" to his knowledge (A. Vol. I, p. 349); and that prior to 1967, he had never "seen a panel with a very thin surface sheet, a lot of perforations, a closely-spaced cellular structure, *some of the walls of which were slotted and in between some walls that were opaque* for use as an acoustic absorber" (A. Vol. I, pp. 349-350) (emphasis added), i.e. claim 13.[9]

It is not only significant that no technical witness for the defendants ever testified that the Watters invention was "obvious," but also that not until the suit, was any issue of possible invalidity for obviousness or any other reason ever raised by either McDonnell Douglas or General Electric in its communications with plaintiff (P.E. 18-D, I.)

In the face of this uncontroverted record, the Court of Appeals for the Eighth Circuit has boldly become the new adversary with the new theories, and has constructed its own "hypothetical" skilled worker in this art, has ignored the imposing record of what the real skilled workers had been able to do and what they had not recognized, and has ignored the telling fact that all of the technical and fact witnesses for both sides have testified to the surprising nature of the phenomenon.

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[9] The plastic perforated sheet and core structures of the G.E. absorbers (P. Ex. 20B, 20B′, 21A)—claim 13—were *not* among those held by the District Court not to be infringements; and the Court of Appeals chose to "express no opinion, on the question of . . . McDonnell Douglas' . . . infringement." Even a surface comparison of App. A with P. Ex. 21A shows the clear infringement of claim 13.

A serious injustice has thus been done petitioner by this destruction of its patent.

But an even greater blow has been dealt the trust in the judiciary.

3. *Conclusion as to the fiats of obviousness.*

It should be reiterated, particularly with regard to claim 13 as to which there was no prior art, that the Court of Appeals deliberately not only refused to accord the statutory presumption of validity and the required burden on the defendant, but it openly refrained from applying any of the tests required by *Graham* v. *Deere, supra.*

Despite the finding that the level of skill was high, the Court ignored the copious and non-conflicting testimony of both sides that with that level of skill, the phenomenon still *surprised* all the engineers at McDonnell Douglas!

All of this is a far cry from the mandate of *Graham* v. *Deere* that the other courts of appeals are at least trying to follow to achieve the uniformity of decision-making sought in the 1952 Act.

While it may not be considered of sufficient importance to grant this writ merely because the Court of Appeals for the Eighth Circuit was arbitrary and unlawful in this case, adequate reasons will be apparent in the following section demonstrating that this action by the Court of Appeals was:

a) in furtherance of a consistent policy of the Court of Appeals for the Eighth Circuit to destroy patents for "obviousness" even in contravention of *Graham* v. *Deere;*

b) in keeping with a now openly conceded hostility against patents in that circuit, in direct contraven-

tion of this Court's reiteration of presumption of validity and the public policy of favoring patentees (*Blonder Tongue Laboratories, Inc.* v. *University of Illinois Foundation*, 402 U.S. 313; 91 S. Ct. 1434; 28 L. Ed. 2d 788 (1971));

c) the result of the adoption of a standard that nothing or almost nothing is patentable, now statistically proven (*infra*) to be in hopeless and not just accidental conflict with *all* the other courts of appeals; and

d) an insensitive deprival of due process to petitioner by deliberately ignoring the record at the trial.

Reasons for Granting the Writ.

I. THE ADMITTEDLY HOSTILE ENVIRONMENT OF THE EIGHTH CIRCUIT DEPRIVES PATENTEE LITIGANTS, INCLUDING PETITIONER, OF ANY SEMBLANCE OF THE AMERICAN CONCEPT OF JUDICIAL IMPARTIALITY AND DUE PROCESS AND REQUIRES SWIFT AND STRICT SUPERVISORY ACTION BY THE SUPREME COURT.

Unprecedented is the now admitted campaign of patent destruction to which the Court of Appeals for the Eighth Circuit has committed itself, and which has engulfed the petitioner as the latest patentee-victim.

From the judiciary itself we hear that:

> "The courtrooms within the province of the Eighth Circuit Court of Appeals do not afford a congenial forum to the holder of a United States patent. A reading of the decided cases clearly reflects this. It is especially true since 1966 following the Supreme Court's expressions in Graham v. John Deere Co., 383 U.S. 1, 86 S. Ct. 684, 15 L. Ed. 2d 545, I can find

> no record of the Eighth Circuit Court of Appeals upholding the validity of a patent since *Graham.* It did so sparingly before *Graham.*" *Woodstream Corporation* v. *Herter's Inc.,* 312 F. Supp. 369, 370 (D. Minn. 1970).[10]

And from the Court of Appeals itself in *Agrashell, Inc.* v. *Hammons Products Company,* 413 F. 2d 89, 93 (8th Cir. 1969):

> "We are aware of the suggestion that the Eighth Circuit has not upheld any patent since the Supreme Court decided Graham v. John Deere Co. . . . This may be so. Whether this fact should be a matter of concern to the judges of this court is *not important* on the appeals before us" (emphasis added).

From studies of legal statisticians,[11] it appears that during the period of 1953-1972, the Court of Appeals for the Eighth Circuit heard 56 cases adjudicating the issue of patent validity, with your petitioner's case being the 57th through 1974.

The percentage of invalidity decisions for this period in the Court of Appeals for the Eighth Circuit is 90 per cent with your petitioner's case. The average percentage of invalidity of the other courts of appeals as a group was 59.7 per cent with no other court of appeals as high as even 80 per cent.

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[10] Responding to the District Court's frank statement, the Court of Appeals for the Eighth Circuit still declined in the *Woodstream* case (446 F. 2d 1143 (8th Cir. 1971)) to make its own statement of validity, but merely ruled that the defendant had failed to carry its statutory burden of proving invalidity.

[11] Koenig, *Patent Invalidity A Statistical and Substantive Analysis,* Clark Boardman Co., Ltd. (N.Y. 1974), Table 14A, 15.

The probability of the Court of Appeals for the Eighth Circuit applying the same law, and being inadvertently in such a variance with all the other courts of appeals, is less than one chance in 18.

Only one case was found valid and infringed by the Court of Appeals for the Eighth Circuit in the last 13 years, and that, as a result of faulty evidence of the defendant. (See footnote 10.)

Present recognition of this open hostility also comes from diverse legal writers in the nation's bar journals and law reviews:

> "For example, the Patent and Trademark Committee's Committee Report for 1968-1969 of the Missouri Bar called the record of the Eighth Circuit Court, which has ruled on seventeen patents since *Deere* and has held all invalid, 'appalling.' "[12]
>
> • • •
>
> "The Court of Appeals for the Eighth Circuit in over sixteen cases since these decisions, [Graham v. Deere, 383 U.S. 39 (1966)] has yet to find a single patent to be valid. In the face of such precedents, a trial judge has little recourse but to determine *why* the patent before him is invalid"[13] (emphasis in original; footnote omitted).
>
> • • •
>
> "Is it worthwhile to obtain a patent . . . 'The courtrooms within the Eighth Circuit Court of Appeals

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[12] Young, "Obviousness in the Eighth Circuit," 14 St. Louis L.J. 672, 673 (1970); also 25 J. Mo. Bar 633 (1969).

[13] Zarley, "Jury Trials in Patent Litigation," 20 Drake L.R. 243, 243-244 (1970).

> do not afford a congenial forum to the holder of a United States patent.' "[14]
>
> • • •
>
> "The Court of Appeals for the Eighth Circuit . . . has ruled on sixteen patents since these Supreme Court decisions. All sixteen were held invalid. . . . 'an especially devastating effect upon the independent inventor . . . Investment in inventions, in consequence, is discouraged since the property value thereof is depreciated.' "[15]

In the case at bar, the Court of Appeals for the Eighth Circuit knew that the obviousness test of *Graham* v. *John Deere Co. of Kansas City,* 383 U.S. 1; 86 S. Ct. 684; 15 L. Ed. 2d 545 (1966), was to be used and purported to apply the test in part to some claims; but it did *not* apply the test to claim 13, where it could not find prior art and where all the evidence was contrary to obviousness.

The Court of Appeals for the Eighth Circuit's "appalling" attitude towards patents can in no way provide the impartial atmosphere that is basic to the American judicial system and which has been denied petitioner. This pre-conceived anti-patent attitude has no place in the American judicial system requiring "due process of law," and should be corrected forthwith by this Court.

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[14] Sease, "The Inventor's Dilemma: Whose Fault?" 58 ABA J. 267, 269 (1972).

[15] Gausewitz, "Brief in Support of Proposed Amendment to Section 103, Title 35, Patents, U.S. Code," 51 J. Pat. Office Soc. 290, 292 (1969).

II. The Conflicting Standard as to "Obviousness," Presumption of Validity and Due Process for Patentees between the Court of Appeals for the Eighth Circuit on the One Hand and This Supreme Court and the Other Circuit Courts for Appeals, Requires Immediate Resolution.

As above shown, the statistics demonstrate that the Court of Appeals for the Eighth Circuit is patently out of line with all other circuits.

In an earlier era, the present Chief Justice recognized the Court-imposed "barriers to patents far more stringent than contemplated either in the first instance by the Constitution or later by Congress," and the Court's "inhospitable attitude toward patents." *C. H. Boehringer Sohn* v. *Watson,* 256 F. 2d 713, 714 (D.C. Cir. 1958).

The late Mr. Justice Jackson spoke frankly of an earlier United States Supreme Court's attitude that:

> "the only patent that is valid is one which this Court has not been able to get its hands on." *Jungerson* v. *Ostby & Barton Co.,* 335 U.S. 560, 572; 69 S. Ct. 269; 93 L. Ed. 235 (1949).

But in *Blonder Tongue Laboratories, Inc.* v. *University of Illinois Foundation,* 402 U.S. 313, 331, 335; 91 S. Ct. 1434; 28 L. Ed. 2d 788 (1971), this Court seemed again to have acknowledged the will of Congress:

> "We fully accept congressional judgment to reward inventors through the patent system. . . . patentees are heavily favored as a class of litigants by the patent statute."

It is imperative, in these critical times when national survival depends upon re-establishing technological pre-

eminence, and when the American people—including lawyers—need to look to their courts with confidence, that this Supreme Court promptly and clearly tell the Court of Appeals for the Eighth Circuit that the above pronouncement in *Blonder-Tongue* is not mere lip service.

The damage and discouragement done by this kind of conduct afforded your petitioner is being decried in the technological and innovative communities.[16]

To preserve and to deserve confidence in our judicial system, this Court should promptly intervene.

The Supreme Court's supervisory authority should be promptly exercised to insure a judicial attitude in which patentees are favored as called for in *Blonder-Tongue, supra;* to insure that patent litigants in the Eighth Circuit are provided the benefits of the same tests of obviousness as in all the other circuits and in accordance with the Supreme Court's mandate in *Graham* v. *Deere, supra;* to insure in the Eighth Circuit the fundamental principles of due process that the courts of other circuits follow in

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[16] "The large number of patents held invalid has an especially devastating effect upon the independent inventor of small financial means. Because of the probability that infringement litigation will result in judgment for the alleged infringer, it encourages a tendency to ignore the rights of patentees even where the patents are valid. . . . Investment in inventions in consequense is discouraged since the property value thereof is depreciated." PTC Subcommittee Report No. 1464, 84th Cong. 2nd Sess., 1956; 51 J. Pat. Office Soc. 292 (1969).

Decline in the rate of growth of technological innovation and rapid dissemination throughout the world of U.S. technology—Boretsky, "Trends in U.S. Technology: A Political Economist's View," 63 American Scientist 70 (1975).

Shrinking in U.S. technology-intensive products since 1970 to the extent of negative trade balance for the first time in this century—Gee, "Foreign Technology and the United States Economy," 187 Science 4177 (1975), p. 622.

respecting the evidence adduced at trial; and to avoid a stigma for the courts of the kind to which the Executive branch has recently been subjected.

Conclusion.

This Court could be of no better service to America on the eve of its Bicentennial, than courageously to restore due process of law to patentees and thus encourage the innovative community to build America to its former role as the world leader in invention and technology. A writ of certiorari should issue to review the judgment of the United States Court of Appeals for the Eighth Circuit.

Respectfully submitted,

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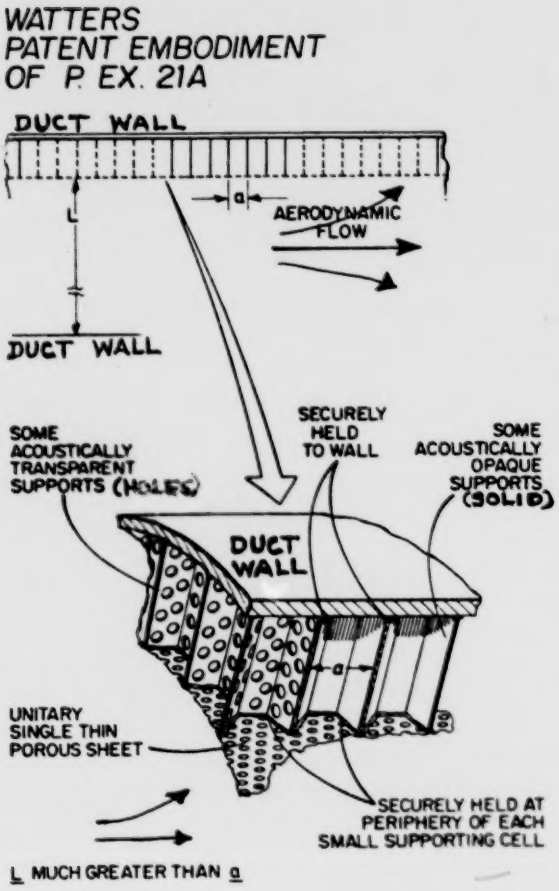
APPENDIX A


WATTERS
PATENT EMBODIMENT
OF P. EX. 21A
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L
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SECURELY HELD AT
PERIPHERY OF EACH
SMALL SUPPORTING CELL
L MUCH GREATER THAN a

Appendix B.

Court of Appeals, Eighth Circuit

Bolt, Beranek and Newman, Inc.
v. McDonnell Douglas Corporation

Nos. 74-1607 and 74-1608

Decided Aug. 15, 1975

Appeal from District Court for Eastern District of Missouri, Wangelin, J.

Action by Bolt, Beranek and Newman, Inc., against McDonnell Douglas Corporation for patent infringement. From judgment for defendant, plaintiff appeals. Affirmed.

Robert H. Rines, Boston, Mass., for appellant.

Frederick M. Woodruff, St. Louis, Mo., for appellee.

Before Jones, Senior Circuit Judge,* and Heaney and Henley, Circuit Judges.

Heaney, Circuit Judge.

Plaintiff acoustics consulting firm is assignee of a patent on a silencing device issued to Bill G. Watters in 1963 [the "Watters Patent"], which patent has never been commercially exploited. It brought this action against McDonnell Douglas Corporation, alleging that a silencing device being used in the latter's DC-10 jet engines infringes the Watters Patent. The District Court held that the Watters Patent was invalid for lack of invention, because

* Warren L. Jones, Senior Circuit Judge, Fifth Circuit, sitting by designation.

it was "obvious" within the meaning of 35 U.S.C. § 103,[1] and that there was no infringement in any event, because the devices being used by McDonnell Douglas were not covered by the Watters Patent. We affirm the District Court's holding of invalidity, and express no opinion on the question of whether McDonnell Douglas' devices would be an infringement were the patent valid.

The Watters Patent is described as

> * * * sound-absorbing structures * * * for lining ducts and similar passages for the purpose of absorbing and silencing the acoustic energy accompanying the flow of a fluid medium, such as air, through the ducts.

In the form of the patent which is being litigated, a portion of the internal surface of a duct is replaced by a thin metal or plastic perforated sheet (facing), which is backed by acoustical cavities formed by a supporting honeycomb structure which holds the facing away from the wall of the duct. A cutaway view of the device gives the appearance of a metal or plastic sandwich.

The plaintiff alleges that structures used by McDonnell Douglas in its jet engines infringe the following claims of the patent:

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[1] Section 103 provides:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. A sound-absorbing panel for lining a portion only of a duct and the like having, in combination with the duct, a thin limp relatively flexible porous sheet having an impedance to acoustic energy that is appreciably resistive, a plurality of relatively rigid supporting members defining spaces therebetween and secured at one end to a surface of the duct and at the other end to the sheet, said duct having a fluid passage therethrough adjacent said sheet with a cross-dimension normal to said sheet, the spaces of the suporting members being large compared to the pores of the sheet but small compared to the said cross dimension, the said spaces being also sufficiently small to provide support for the relatively flexible sheet in order substantially to prevent its sagging and flexing.

2. The panel of claim 1, said supporting members having substantially equal height.

• • •

11. The panel of claim 1, said supporting members being substantially acoustically opaque.

• • •

13. The panel of claim 1, some of said supporting members being substantially acoustically opaque and some substantially acoustically transparent.

• • •

16. The panel of claim 1, the portions of said sheet between successive supporting members having a plurality of said pores and said panel having a cover extending between said sheet and said duct surface.

17. A sound-absorbing structure having, in combination, a duct, and a plurality of sound-absorbing panels spaced apart to define a fluid passage therebetween with a cross-dimension between said panels, each of said panels comprising a thin limp relatively flexible porous sheet having an impedance to acoustic energy that is appreciably resistive, a plurality of relatively rigid supporting members defining spaces therebetween and secured at one end to a corresponding surface of the duct and at the other end to the sheet, the spaces of the supporting members being large compared to the pores of the sheet but small compared to said duct passage cross-dimension, said spaces being also sufficiently small to provide support for the relatively flexible sheet in order substantially to prevent its sagging and flexing.

• • •

20. The structure of claim 17, said panels being substantially parallel.

[1] The patent examiner considered ten United States Patents and seven Foreign Patents as prior art. The District Court found that there were several additional items of prior art which were not considered by the examiner, thus weakening the ordinary presumption of patent validity. See Ralston Purina Co. v. General Foods Corp., 442 F.2d 389, 390, 170 USPQ 202, 203 (8th Cir. 1971); American Infra-Red Radiant Co. v. Lambert Industries, Inc., 360 F.2d 977, 989, 149 USPQ 722, 727-728 (8th Cir.), cert. denied, 385 U.S. 920, 151 USPQ 757 (1966). Specifically, it found that claims 1, 2, 11, 16, 17 and 20 were anticipated by two articles in the September, 1951, issue of the Journal of the Acoustical Society of America —

one article by Ingard and Pridmore-Brown, and the other article by Ingard and Bolt. It further found that claims 17 and 20 were anticipated in an article by Ira Dyer in the May 19, 1956, issue of Noise Control, that claim 1 was anticipated by Goldstein Patent '857,[2] and that claim 13 was anticipated by Kjaer Patent '685. After comparing the prior art to the patent in suit, the District Court found that the Watters Patent comprised "only an amalgam of known elements," and that "the combination of old elements is obvious to the hypothetical person skilled in the art."

The standard for our review of the District Court's finding of obviousness was set forth by the Supreme Court in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966):

> While the ultimate question of patent validity is one of law, * * * the § 103 condition, which is but one of three conditions, each of which must be satisfied, lends itself to several basic factual inquiries. Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and

[2] The plaintiff urges that the patent examiner did consider the Goldstein Patent as prior art. We are satisfied that the record supports the District Court's contrary conclusion. Until the very end of the patent proceeding, the examiner repeatedly rejected Watters' application on the basis of Goldstein, and Watters repeatedly urged that Goldstein's application, filed on March 6, 1956, was not relevant as prior art because Watters had filed an affidavit swearing that he had completed his own invention and successfully tested it prior to March 6, 1956. The record at trial, including the plaintiff's answers to interrogatories supports the conclusions that the affidavit was false and that Watters did not conceive of his device until after March 6, 1956. Although the record is ambiguous on the patent examiner's reason for ultimately allowing the patent, despite Goldstein, it supports the District Court's conclusion that the examiner relied on the false affidavit.

> the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art [3] resolved. Against this background, the obviousness or nonobviousness of the subject matter is determined. • • •

[2] Applying this standard to the record before us, we find no clear error in the District Court's factual findings as to the scope of the prior art [4] and the comparison of that art with the Watters Patent. We are satisfied that the court's legal conclusion of obviousness was proper in light of those findings. Indeed, we find support for the conclusion of invalidity, not only in the items of prior art enumerated by the court, but also in various other publications and patents which were introduced at trial.

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[3] The uncontradicted testimony by one of defendant's experts, brought out in cross-examination, was that

> • • • [i]n this particular art it has been demonstrated at the trial that the level of skill is quite a high level. It is a level of persons who have degrees and occasionally graduate degrees in engineering and usually related to this type of engineering. • • •

Although the District Court made no explicit finding as to the level of ordinary skill in the pertinent art, the plaintiff does not deny that the level of ordinary skill is quite high.

[4] The plaintiff asserts that the only relevant prior art concerning the silencing of noise in ducts involved acoustically *transparent* heavy-gauge facings holding a cushion filling such as fibre glass, rock-wool or packed felt. As will be seen, however, the prior art dealing with the silencing of noise in rooms had not been limited to such techniques for at least thirty years. Several witnesses testified that fibre blankets or cushions could not be used in high velocity ducts because there would be "fuzz" all over the place. This was such an obvious fact that any person of ordinary skill in the art would look to the non-fibrous techniques which were being used in rooms. Accordingly, we are satisfied that the patent examiner and the District Court properly concluded that the prior art directed to sound-absorption in rooms was within the scope of the relevant art.

The obviousness of the Watters Patent can perhaps be best demonstrated by discussing the various techniques which Watters combined to create his device.

First, the technique of using a perforated facing with an air cavity behind it, thus forming a "Helmholtz resonator," was well known in the prior art of acoustical silencing devices. Examples of its use are abundant, and include: Trader Patent '180, issued in 1925; 1949 article in a French journal by Jacques Brillouin; the 1951 Ingard and Bolt article; the 1951 Ingard and Pridmore-Brown article; Kjaer Patent '685, issued in 1952; lectures given by Ingard and Bolt at General Electric in 1955; Watters and Baruch Patent '151, filed in 1955; Goldstein Patent '857, filed in 1956; and Baruch Patent '675, issued in 1956.

Second, the technique of rendering a thin perforated facing acoustically resistive by combining it with a nonperforated membrane such as "tea-bag" paper, and the technique of forming an air cavity Helmholtz resonator behind such a facing were known in the prior art. The Kjaer Patent taught the use of a facing combined of perforated and nonperforated elements, and both the Brillouin and the Ingard and Bolt articles suggested that such a facing could be constructed. In declaring that his preferred embodiment would use such a combined facing, Watters' original application openly stated that he was taking that construction from the previously filed application for Baruch Patent '675. The Baruch application had disclosed a facing comprised of two thin perforated plastic sheets sandwiching a layer of nonperforated tea-bag paper or cellulose film. Watters' application suggested that this facing be used, stating that it was the addition of the tea-bag paper or cellulose film which rendered the facing acoustically resistive.

Third, the technique of rendering a thin facing acoustically resistive without use of a nonperforated membrane, by selecting proper dimensions of thickness, porosity and pore size, was known in prior art. That is to say, it was already known that a thin perforated facing could itself be acoustically resistive if properly constructed.[5] Although, as stated above, Watters' preferred embodiment would involve the combined facing disclosed by Baruch '675, Watters declared that, as an alternative, one could use a single perforated sheet which was acoustically resistive. The application instructed the reader that, if this alternative were to be chosen, the reader could copy the technique which was disclosed in the previously filed application for Watters and Baruch Patent '151. The Goldstein Patent also had disclosed this technique. Both the Goldstein Patent and Patent '151 showed the use of such a facing in front of air cavities which amounted to Helmholtz resonators.

[3] Fourth, the technique of partitioning behind a facing to set up a series of Helmholtz resonators was well-known in the prior art, and the literature made it clear that the use of such partitions made the device far superior where

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[5] At trial, plaintiff endeavored to show that the true breakthrough in the Watters Patent was the discovery that, in a high velocity environment, a facing which would be acoustically transparent in still air suddenly became acoustically resistive. Although the record shows that defendant's engineers expressed surprise at this phenomenon, it contradicts the plaintiff's assertion that Watters had discovered the phenomenon. Watters did not claim or even intimate before the Patent Office that moving air or the velocity thereof had any effect in determining the proper hole size necessary to render the facing acoustically resistive. Instead, he used the identical formula for determining hole size as had been disclosed in Watters and Baruch Patent '151 for ceiling devices. Moreover, the text of Watters and Baruch Patent '151 warns the reader that

the angle of incidence of the sound was not "normal" (i.e., perpendicular to the facing) and where high frequencies were involved. The technique was taught in the Kjaer and Goldstein patents, and had been discussed at great length in the Brillouin, Ingard and Bolt, and Ingard and Pridmore-Brown articles, as well as in the General Electric lectures. It has already been seen that Watters was taking facings which had previously been used to form Helmholtz resonators in ceilings and was simply placing those facings in a duct environment. In light of the fact that the incidence of sound traveling through a duct is primarily *not* perdendicular to the facing, it would have been extraordinary for him to have ignored the repeatedly published statements and mathemathical formulae demonstrating that partitions behind the facing would make the resonator vastly superior. Watters' decision to place partitions behind already known facings was, without question, an obvious one.[6]

> * * * If the openings are of the size ordinarily used in other types of sound-absorbing ceilings * * * such as openings on the order of 1/16 of an inch in diameter, more or less, relatively closely spaced from one another, then the resistance presented to the incident sound energy in the audible frequency range is too low to be effective to dissipate sound energy through the action of the perforations alone. * * *

Had defendant's engineers consulted the Watters Patent and followed through on its reference to Watters and Baruch Patent '151, therefore, they would have been led away from, rather than toward, their discovery that holes 1/16 of an inch or larger became suddenly acoustically resistive in high velocity wind settings.

[6] As the District Court properly pointed out, the Watters "supporting members" are not limited to honeycomb forms, but would encompass laterally spaced apart planar walls. Such planar walls were one obvious way to accomplish the partitioning which was known in prior art, and, indeed, were used in the Kjaer Patent. Even assuming, however, that the Watters Patent claimed the

Fifth, the technique of locating the partitions so that the distance between partitions is smaller than the cross-dimension of the duct, yet larger than the cross-dimension of the pores in the facing, was in the prior art. The Kjaer and Goldstein patents disclose devices which have just such relationships between the stated dimensions. Furthermore, the Brillouin and Ingard and Pridmore-Brown articles discussed the proper sizing of the series resonators at great length and disclosed much of the mathematical theory underlying the selection of proper sizing.[7]

From the foregoing, it is readily apparent that claims 1, 2, 11 and 16 of the Watters Patent were, as the District Court held, "only an amalgam of known elements." Moreover, the Goldstein Patent had combined all of the elements in virtually the same manner as set forth in those claims. We agree with the court's conclusion that it would have been obvious for a person of ordinary skill in the art to attempt to place Watters' minor variation of Goldstein's device in a duct.

Three claims remain to be disposed of. Claim 17 is a restatement of claim 1, with the provision that there

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honeycomb structure as such, that structure was equally obvious and known in the prior art. The Goldstein Patent clearly discloses such a supporting structure, and the English translation of the Brillouin article, which was received into evidence without objection, uses the word "honeycomb" to describe a possible means of partitioning.

[7] In the original application, Watters in effect conceded that the first four techniques discussed above were in the prior art and had been used in combination. He declared, however, that two problems remained: the flexing of the facing and the persistence of high frequency resonance. He then stated: "These problems underlying the present invention have been completely overcome with a particular critical kind of *dimensioning* of the spaces between supporting members * * *." (Emphasis supplied.) The supposedly "critical dimensions" had been used by both Kjaer and Goldstein.

should be more than one of such panels placed in the duct, and claim 20 states that the panels should be parallel. The court properly concluded that the technique of lining more than one surface in a duct or room is an obvious one, and that the technique of erecting the panels in parallel formation is also obvious. Dr. Bolt testified by deposition that he had seen ducts where all four walls were lined, and the Dyer article disclosed ducts lined on four sides and on opposite, parallel walls.

Finally, claim 13 states that some of the supporting members can be substantially acoustically opaque and some substantially acoustically transparent. The patent indicates that this may be done by perforating some of the partitions, and that the purpose of such perforation is to "tune" the device so that it is capable of absorbing a broader band of frequencies. We are satisfied that, although this technique was not specifically taught or disclosed in any of the publications before the court, the method was one which would be obvious to a person of ordinary skill in the art. It was well known that, in order to deal with a broad band of frequencies, the honeycombing or other partitioning could be constructed so that different sized chambers in the supporting mechanism resulted. The Brillouin, Ingard and Bolt, and Ingard and Pridmore-Brown articles discussed this concept of "tuning." Given the honeycombing structure which was already known to the art, there would be two obvious alternative ways to enlarge some, but not all, of the air cavities or series resonators: to move some of the partitions so that different sized chambers were constructed from the outset, or to connect some of the chambers by means of slits or perforations. The Watters Patent application implicitly recognized the obviousness of the latter approach:

> If it is desired to introduce particular frequency resonance phenomena, *of course*, the acoustically opague [sic] supporting members * * * may, in some areas, be rendered substantially transparent. * * * (Emphasis supplied.)

In sum, we affirm the District Court's conclusion that none of the allegedly infringed claims met the statutory requirement of non-obviousness. The oft-quoted statement of Justice Clark in Graham v. John Deere Co., supra at 19, 148 USPQ at 467, is once more to the point:

> * * * We have been urged to find in § 103 a relaxed standard, supposedly a congressional reaction to the increased standard'' applied by this Court in its decisions over the last 20 or 30 years. The standard has remained invariable in this Court. Technology, however, has advanced — and with remarkable rapidity in the last 50 years. Moreover, the ambit of applicable art in given fields of science has widened by disciplines unheard of a half century ago. It is but an even-handed application to require that those persons granted the benefit of a patent monopoly be charged with an awareness of these changed conditions. * * * He who seeks to build a better mousetrap today has a long path to tread before reaching the Patent Office.

[4] Since we affirm the court's finding of invalidity of the Watters Patent, we need not rule on the question of whether or not the defendant's structures are such that they would have infringed on that patent, had it been valid, and we express no opinion on that issue.

[5] The defendant cross-appeals from the District Court's denial[8] of an award of attorney fees before that court under 35 U.S.C. § 285. The determination of whether or not an action is an "exceptional case" within the meaning of § 285 is a matter for the sound discretion of the trial court. See Technograph Printed Circuits, Ltd. v. Methode Electronics, Inc., 494 F.2d 905, 909, 179 USPQ 206, 209 (7th Cir. 1973); Q-Panel Co. v. Newfield, 482 F.2d 210, 211, 178 USPQ 521, 522 (10th Cir. 1973). The defendant urges that that discretion was abused because the trial court made no ruling on the issue of fraud. Mere failure to rule on that issue, standing alone, however, is not objectionable for

> * * * [t]he trial court need not make specific findings on all facts and evidentiary matters brought before it, but need find only the ultimate facts necessary to reach a decision in the case. * * * United States v. F. D. Rich Co., Inc., 439 F.2d 895, 899 (8th Cir. 1971).

The trial court had sustained the defense of obviousness, and the alleged fraud was simply an alternative defense. As was the case in Indiana General Corp. v. Krystinel Corp., 421 F.2d 1023, 1033-1034, 164 USPQ 321, 329-330 (2nd Cir.), cert. denied, 398 U.S. 928, 165 USPQ 609 (1970), we cannot say that the court abused its discretion in withholding a ruling on the fraud issue and in denying attorney fees.

The judgment of the District Court is affirmed.

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[8] We find no merit to the defendant's implication that the trial court made no ruling on its request for attorney fees. The request was made and was not granted, despite the court's award of costs. Under the circumstances, the denial of the award was clear.

APPENDIX C.

UNITED STATES DISTRICT COURT
for the
EASTERN DISTRICT OF MISSOURI

ORDER

(Filed in U. S. District Court June 18, 1974)

In accordance with the Memorandum of the Court filed this date in this action and incorporated herein,

It Is Hereby Ordered, Adjudged and Decreed that the plaintiff take nothing from the defendant; and

It Is Further Ordered that the plaintiff pay costs.

Dated this 18th day of June, 1974.

/s/ H. KENNETH WANGELIN
United States District Judge

MEMORANDUM

(Filed in U. S. District Court June 18, 1974)

This matter was tried to the Court without a jury and the Court has been duly advised by testimony, documentary evi-

dence and briefs of all the parties and makes the following findings of fact and conclusions of law:

This is an action for infringement of a patent brought pursuant to the Patent Act, Title 35, United States Code. This Court has jurisdiction under 28 U.S.C., Sections 1338 and 2201. Venue is proper under 28 U.S.C., Section 1400(b). Plaintiff is a Massachusetts corporation having its principal place of business at Cambridge, Massachusetts. Plaintiff is the assignee of United States Patent 3,113,634, granted on December 10, 1963, the patent allegedly infringed in this suit. The defendant is a Maryland corporation with its principal place of business at St. Louis, Missouri.

Patent 3,113,634 (herein known as the Watters Patent) is described as a sound-absorbing panel for lining a duct and similar passages for the purpose of absorbing and silencing the acoustic energy accompanying the flow of a fluid medium, such as air, through the ducts. The Watters Patent claims are:

What is claimed is:

> 1. A sound-absorbing panel for lining a portion only of a duct and the like having, in combination with the duct, a thin limp relatively flexible porous sheet having an impedance to acoustic energy that is appreciably resistive, a plurality of relatively rigid supporting members defining spaces therebetween and secured at one end to a surface of the duct and at the other end to the sheet, said duct having a fluid passage therethrough adjacent said sheet with a cross-dimension normal to said sheet, the spaces of the supporting members being large compared to the pores of the sheet but small compared to the said cross dimension, the said spaces being also sufficiently small to provide support for the relatively flexible sheet in order substantially to prevent its sagging and flexing.

2. The panel of claim 1, said supporting members having substantially equal height.

3. The panel of claim 1 the said sheet being substantially U-shaped and said supporting members having successively increasing and then successively decreasing height, whereby said panel is substantially U-shaped.

4. A sound-absorbing panel as claimed in claim 3 and in which the supporting members in the region of the crest of the U-shape thereof are of substantially uniform height to provide a substantially flat neck region.

5. A sound-absorbing panel as claimed in claim 3 and in which the sheet is interrupted in the region of the crest of the U-shape thereof to expose the panel to acoustic energy directly and not through the resistive sheet.

6. A sound-absorbing panel as claimed in claim 3 and in which the exposed crest region of the U-shape thereof is bounded by acoustically opaque baffles.

7. A sound-absorbing panel as claimed in claim 3 and in which the maximum height of the U-shaped panel is tuned to the intermediate frequencies of the band of sound frequencies to be transmitted along the duct.

8. The panel of claim 1 said sheet comprising a thin carrier member having the pores of said sheet laminated with at least one flexible acoustically resistive layer which renders said sheet acoustically resistive.

9. The panel of claim 1 said sheet comprising a thin member of thickness **d** expressed in thousandths of an inch, having a number **n** of pores per square inch and a port half-cross-dimension **r** expressed in thousandths of an inch, related substantially by the expression

$$4 \log_{10} 4 = K - \log_{10} n/d$$

where K is a constant lying within the range of from substantially 2.39 to substantially 4.39.

10. A sound-absorbing panel as claimed in claim 9 and in which the cross dimension of the said pores lies within the range of from substantially 2 to substantially 40 thousandths of an inch.

11. The panel of claim 1 said supporting members being substantially acoustically opaque.

12. The panel of claim 1 said supporting members being substantially acoustically transparent.

13. The panel of claim 1 some of said supporting members being substantially acoustically opaque and some substantially acoustically transparent.

14. The panel of claim 1 said sheet being secured to said supporting members to permit resonant vibration of the sheet portions between successive supporting members.

15. The panel of claim 1 said supporting members and the spaces therebetween being shaped to define a cellular supporting structure.

16. The panel of claim 1 the portions of said sheet between supporting members having a plurality of said pores and said panel having a cover extending between said sheet and said duct surface.

17. A sound-absorbing structure having, in combination, a duct, and a plurality of sound-absorbing panels spaced apart to define a fluid passage therebetween with a cross-dimension between said panels, each of said panels comprising a thin limp relatively flexible porous sheet having an impedance to acoustic energy that is appreciably resistive, a plurality of relatively rigid supporting members defining spaces therebetween and secured at one end to a corresponding surface of the duct and at the

other end to the sheet, the spaces of the supporting members being large compared to the pores of the sheet but small compared to said duct passage cross-dimension, said spaces being also sufficiently small to provide support for the relatively flexible sheet in order substantially to prevent its sagging and flexing.

18. The structure of claim 17 said panels having successive U-shaped portions with the crests and troughs of one panel alternating with the crests and troughs of the other panel, the longitudinal spacing between the crests of one panel and the adjacent crests of the other panel being a multiple of the half wavelength of the intermediate frequencies of the band of sound frequencies to be transmitted along the duct.

19. The structure of claim 18 the maximum height of the panels being tuned to said intermediate sound frequencies.

20. The structure of claim 17 said panels being substantially parallel.

The defendant is accused of infringing claims 1, 2, 11, 13, 16, 17 and 20 of the Watters patent by the placement of sound attenuating panels in the surfaces of the nacelle air inlet, the surfaces of the by-pass and in certain surfaces of the hot section near the exhaust of its DC-10 Commercial Aircraft. Such panels generally consist of a perforated face sheet supported by a honeycomb or cellular core and the core is backed up by an imperforate back plate.

Validity of the Patent

The federal patent power is predicated upon the specific constitutional provision which authorizes the Congress "To promote the Progress of . . . useful Arts, by securing, for limited

Times to . . . Inventors the Exclusive Right to their . . . Discoveries." Art. I, Section 8, Clause 8. Circumscribed by the Constitution, Congress may set out conditions and tests for patentability. **McClurg v. Kingsland,** 1 How. 202, 206, 11 L.Ed. 102 (1843). The Commissioner of Patents and the courts are charged with the duty in the administration of the patent system to give effect to the constitutional standard by appropriate application, in each case, of the statutory scheme of the Congress. **Graham v. John Deere Co.,** 383 U.S. 1, 86 S.Ct. 684, 15 L.Ed.2d 545 (1965).

Pursuant to the Constitutional grant of power and in light of the **Hotchkiss v. Greenwood,** 11 How. 248, 13 L.Ed. 683 (1951), formulation of patentability,[1] the Congress in the 1952 Patent Act described the three conditions of patentability; utility,[2] novelty,[3] and **nonobviousness.** In the case at bar there have been but nominal challenges as to the conditions of utility and novelty and this Court need not consider them. The epicenter of the validity issue relates to Section 103, which provides:

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[1] "[U]nless more ingenuity and skill . . . were required . . . than were possessed by an ordinary mechanic acquainted with the business, there was an absence of that degree of skill and ingenuity which constitute essential elements of every invention. In other words, the improvement is the work of the skilful mechanic, not that of the inventor." **Hotchkiss v. Greenwood,** supra at 267.

[2] § 101. Inventions patentable. Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

[3] § 102. Conditions for patentability; novelty and loss of right to patent. A person shall be entitled to a patent unless—

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for patent, or

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale

35 U.S.C. § 103. Conditions for patentability; non-obvious subject matter.

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The proper mode of application of section 103 was described by the Supreme Court in **Graham v. John Deere Co.**, *supra*, wherein it was said:

Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the

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in this country, more than one year prior to the date of the application for patent in the United States, or

(c) he has abandoned the invention, or

(d) the invention was first patented or caused to be patented by the applicant or his legal representatives or assigns in a foreign country prior to the date of the application for patent in this country on an application filed more than twelve months before the filing of the application of the United States, or

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or

(f) he did not himself invent the subject matter sought to be patented, or

(g) before the applicant's invention thereof the invention was made in this country by another who had not abandoned, suppressed, or concealed it. In determining priority of invention there shall be considered not only the respective dates of conception and reduction to practice of the invention, but also the reasonable diligence of one who was first to conceive and last to reduce to practice, from a time prior to conception by the other.

claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. At 17.

In considering the obviousness vel non of the patent in suit this Court shall first examine the scope and content of the prior art, then compare and contrast the prior art and the patent in suit, particularly in regard to the claims alleged to be infringed, and finally consider the level of ordinary skill in the pertinent art.

The Examiner considered ten United States Patents and seven Foreign Patents as prior art. However, the defendant has demonstrated to this Court that several other publications and patents should also have been considered as pertinent prior art. This Court recognizes the modern trend toward widening the scope of prior art which can be considered pertinent. **Mandel Brother, Inc., v. Wallace,** 335 U.S. 291 (1948); **Gerner v. Moog Industries, Inc.,** 383 F.2d 56 (8th Cir., 1967); **Skee-Trainer, Inc. v. Garelick Mfg. Co.,** 361 F.2d 895 (8th Cir., 1966), and holds that the after discussed patents and publications are relevant to the patent in suit.

Perhaps the most salient of the unconsidered prior art cited to the Court by the defendant is the article by Ingard and Pridmore-Brown entitled "The Effect of Partitions in the Absorptive Lining of Sound-Attenuating Ducts," published September, 1951, in THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA. This article on page 589 and depicted by Fig. 1 discloses a rectangular duct which is divided lengthwise by a thin perforated facing covered with a resistive cloth. Said facing is supported on one wall of the duct by partitions which are placed crosswise at regular intervals down the length of the duct. The distance between the partitions was varied in steps from 10 cm to infinity.[4] Such structure when applied to the patent in suit anticipates claims 1, 2, 11, 16, 17 and 20.

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[4] It should be noted that this same structure was included in a General Electric acoustic lecture course given by Drs. Ingard and Bolt of Bolt, Beranek and Newman on or about January 27, 1955.

A comparative analysis of the items of claim 1 and the structure of the Ingard and Pridmore-Brown article demonstrates the following anticipation:

1. "A sound absorbing panel for lining a portion only of a duct and the like . . ." Fig. 1 clearly shows a panel applied to a portion of the duct wall.

2. ". . . having in combination with the duct . . ." Fig. 1 clearly shows the structure in combination with a duct.

3. ". . . a thin limp relatively flexible porous sheet having an impedance to acoustic energy that is appreciably resistive . . ." The structure and its description indicates the employment of a 0.4 cm thin perforated facing covered with a low resistance cloth. Moreover, it is obvious that the cloth is acoustically resistive.

4. ". . . a plurality of relatively rigid supporting members defining spaces there between and secured at one end to a surface of the duct and at the other end to the sheet . . ." According to the plaintiff's answers to Interrogatories Nos. 100 and 101 the Watters' "supporting members" are not limited to honeycomb forms but would encompass laterally spaced apart planar walls as shown in Fig. 1. As to the method by which the supporting members are secured to the duct and the facing such is deemed de minimis. Watters indicates in his patent at Col. 2., lines 37 et seq. that the thin porous sheet is affixed to the supporting members "by cementing or otherwise securing." The phrase "otherwise securing" is sufficiently broad to include any appropriate method used by a man skilled in the art.

5. ". . . said duct having a fluid passage therethrough adjacent said sheet with a cross-dimension normal to said sheet . . ." The structure depicted by Fig. 1 shows a fluid passage with such a cross-dimension.

6. ". . . the spaces of the supporting members being large compared to the pores of the sheet . . ." The description of Fig. 1 teaches that the perforation are 0.4 cm in diameter while the spaces as defined by the supporting members ranged from 10 cm to infinity. Such comparative dimensions meet the size limitation of the claim.

7. ". . . but small compared to the said cross-dimension . . ." The description of Fig. 1 provides that the cross-dimension of the passage is 14.5 cm and the spaces between the supporting members can be 10 cm. Accordingly, the above Watters' limitation is met.

8. ". . . the said spaces being also sufficiently small to provide support for the relatively flexible sheet in order substantially to prevent its sagging and flexing." As the language descriptive of Fig. 1 allows for 10 cm spacing of the supporting members, such is sufficiently small to be in accord with this limitation.

Claim 2, which provides that the supporting members have substantially equal height, is dependent on claim 1. From the description of Fig. 1 and its depiction in the Ingard and Pridmore-Brown articles it is apparent that the supporting members are of substantially equal height. Claim 11., which provides that said supporting members are substantially acoustically opaque, is also dependent upon claim 1. From the foregoing article it is evident that said supporting members are substantially acoustically opaque. Claim 16., which is also dependant upon claim 1, provides that the portions of said sheet between successive supporting members have a plurality of said pores and that the sound-absorbing panel has a cover extending between said sheet and said duct surface. Again, from the aforementioned publication these limitations are met.

Claim 17 and 20 are not distinct from claims 1, 2 and 11 and their subject matters are obvious from the teachings of

the Ingard and Pridmore-Brown publication to those persons skilled in the art.

In further connection with claim 17 an article entitled "Noise Attenuation of Dissipative Mufflers" authored by Ira Dyer and published in the May 19, 1956 issue of NOISE CONTROL is pertinent. The import of claim 17 is the limitation of a plurality of sound-absorbing panels spaced apart. The foregoing Dyer article shows spaced apart sound absorbing panels lining the opposite walls of a duct at Figures 2 and 3 on page 50. Fig. 4 on page 51 also shows a duct lined on four sides. Additional corroboration for prior art anticipating claim 17 can be found in the deposition of Dr. Bolt of defendant corporation at page 287, wherein he stated that he had seen ducts having four walls lined with sound absorbing panels as of 1958, the year the patent in suit was filed with the Patent Office.

With regard to claim 20, which is dependent upon claim 17, the Dyer article discloses in Figures 2, 3 and 4 the limitation in claim 20 of the panels being substantially parallel.

Additional anticipation by prior art of the Watters' claims can be found in an article entitled "Absorption Characteristics of Acoustic Material with Perforated Facings" by U. Ingard and R. H. Bolt of defendant Bolt, Beranek and Newman published in the September, 1951 issue of THE JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA. Fig. 1 of the article shows a layer of porous material placed parallel to a hard wall and separated from the wall by an air cavity. Such air cavity between the porous material and the wall may or may not be divided into cells by parallel spaced partitions. The article also describes the use of a perforated plate with the porous material. The authors further state at page 535 the case where the resistive porous layer is very thin, actually a cloth or a screen, covered with a perforated facing.[5] From the aforementioned

[5] Though the above structure does not include the duct limitation in claim 1. of the Watters' patent, such is not essential for the

article it is clear that claims 1, 2, 11, 16, 17 and 20 of Watters are either completely anticipated or are obvious to persons skilled in the art.

Claim 1 of Watters teaches that the face sheet is "a thin limp relatively flexible porous sheet having an impedence to acoustic energy that is appreciably resistive . . ." The specification further describes it as "a thin, non-self-supporting relatively flexible porous sheet" comprised of "a perforated, relatively thin, preferably plastic layer carrier member . . . laminated with either or both of outer and inner extremely flexible porous acoustically-resistive materials, such a 'tea-bag' paper, porous cellulose film, and the like." Such sheet is either specifically anticipated or is made obvious by the teachings of the Goldstein Patent No. 2,870,857, filed on March 6, 1956. The comparable face sheet in Goldstein is comprised of two sheets: the outer or facing sheet made of vinyl chloride acetate plastic and the inside sheet of tissue or foil. Said sheets are joined together by a suitable adhesive cement, or by heat-sealing or welding.[6]

Watters' claim 13, dependent upon claim 1, provides the limitation that some of the cellular supporting members are substantially acoustically opaque and some are substantially acoustically transparent. The specifications of Watters indicate that the method of rendering the supporting structures acoustically transparent is to perforate them (Col. 5, lines 50 et seq.). If said claim has not been made obvious by the aforementioned prior art, it clearly is anticipated by the Kjaer Patent 2,619,685, filed on June 11, 1946. Therein, it also provides for perfo-

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anticipation of said claim. The record is replete with evidence where the duct is equated to a chamber or a room. Moreover, claim 1. speaks of "a duct and the like . . ."

[6] There are differences in thickness in the sheets of the two patents, however, this Court does not consider such to be of particular significance when viewed with respect to persons skilled in the art.

rations in similar supporting members of a sound absorbing mechanism.

In following that the aforementioned prior art is relevant, then thought must be given to the fact that such prior art was not considered by the Patent Office during the prosecution of the patent in suit. Though a patent is presumed valid, **Graham v. Jeoffroy Mfg.,** 206 F.2d 769 (5th Cir., 1953), such presumption is weakened, if not completely destroyed by proof of prior non-considered art. **Ralston Purina Co. v. Gen. Food Corp.,** 442 F.2d 389 (8th Cir., 1971); **American Infra-Red Radiant Co. v. Gen. Food Corp.,** 360 F.2d 977 (8th Cir., 1966), cert. den. 385 U.S. 920 (1966). Therefore, as the non-considered art is relevant, the initial presumption of validity is at least diminished and at most negated.

Juxtapositioning the prior art, both considered and non-considered, with the patent in suit, this Court can find only an amalgam of known elements. Though it cannot be disputed that plaintiff's aggregation results in a utilitarian product, such combination is nothing new, surprising or novel, nor is a new function created or a useful addition of knowledge taught to the prior art. **Kell-Dot Industries, Inc. v. Braves,** 361 F.2d 25, 28 (8th Cir., 1966). The Supreme Court in **Lincoln Engineering Co. of Illinois v. Stewart-Warner Corp.,** 303 U.S. 545 (1938), teaches us:

> The mere aggregation of a number of old parts or elements which, in the aggregation, perform or produce no new or different function or operation that theretofore performed or produced by them, is not patentable invention. At 549.

Before the Court reaches the final issue of obviousness, the penultimate question of knowledge of one ordinarily skilled in that art must be considered. The proper viewpoint of such knowledge as expressed by the Eighth Circuit Court of Appeals

is that "[k]nowledge of a hypothetical person skilled in the art, who has thought about the subject matter of the patented invention of that art." **Flour City Architectural Met. v. Alpana Alum. Prod., Inc.,** 454 F.2d 98, 107 (8th Cir., 1972). This Court finds that such hypothetical person would be able to design the patent in suit.

Accordingly, this Court finds that the Watters patent when considered with the prior art and particularly such art not cited by the Patent Office is invalid because the combination of old elements is obvious to the hypothetical person skilled in the art.

Infringement

Even if the Watters patent were valid, the accused devices of the defendant do not infringe. Since the Watters patent is a combination of old elements, each of the elements must be included to constitute infringement. **Gallo v. Norris Dispensers, Inc.,** 315 F.Supp. 38, 40 (E.D. Mo., 1970); **Morpul, Inc. v. Glen Raven Knitting Mill, Inc.,** 357 F.2d 732 (4th Cir., 1966). Aside from the blatant difference in capabilities as the accused devices must operate under extremes of heat, sound velocity and sound pressure,[7] claim 1 of Watters calls for a "thin limp relatively flexible porous sheet." None of the accused mechanisms have such a "limp" sheet. Rather, the counterpart in the defendant's mechanisms to the plaintiff's limp sheet is formed by a heat treatment over a die, with a pulling strength exerted

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[7] Inside the engine nacelle the temperature at take-off is 1,000°f. the sound velocity ranger from 1,000 to 10,000 vibrations per second (Hertz) and the sound pressure level varies from approximately 130db. to 170db. Whereas, the Watters patent is primarily designed to be used where the temperatures, sound velocity and pressure are considerably more moderate

on it of 20 to 25 tons. This, by no delimitation upon imagination, is not limp.[8]

/s/ H. KENNETH WANGELIN
United States District Judge

Dated this 18th day of June, 1974.